

AMENDMENT

In the Claims:

This listing of claims will replace all previous versions and listings of claims in the application.

1. (Canceled)

2. (Currently Amended)

A method for increasing atmospheric oxygen concentration within an occupant cabin of an aircraft, said method comprising:

separating oxygen from ambient air onboard an aircraft thereby establishing a high-concentration oxygen supply;

dispensing oxygen from the high-concentration oxygen supply to an occupant cabin of the aircraft to increase a partial pressure of oxygen at a current internal cabin pressure; and

directing oxygen from the high-concentration oxygen supply overboard if a lower atmospheric oxygen concentration is ~~required~~ desired.

3. (Currently Amended)

A method for increasing nitrogen concentration within regions of an aircraft, said method comprising:

separating nitrogen from ambient air onboard an aircraft thereby establishing a high-concentration nitrogen supply;

dispensing nitrogen from the high-concentration nitrogen supply to a fire-susceptible, internal non-habitable region ~~outside a fuel tank~~ of the aircraft thereby decreasing the capability for the atmosphere to support combustion;

detecting an oxygen concentration in a habitable region of the aircraft;

determining that a reduced oxygen concentration is ~~required~~ desired in the habitable region of the aircraft, and

adding nitrogen from the high-concentration nitrogen supply into the habitable region to dilute the oxygen concentration if the reduced oxygen concentration is ~~required~~ desired.

4. (Currently Amended)

A method for monitoring partial pressure of oxygen in an occupant cabin of an aircraft and in fire-susceptible, non-habitable areas of the aircraft, said method comprising:

establishing a high-concentration oxygen supply;

continuously detecting an absolute pressure and an oxygen percentage in the occupant cabin and the fire-susceptible, non-habitable areas of the aircraft; ~~[[,]]~~

computing a partial pressure of oxygen within the occupant cabin and the fire-susceptible, non-habitable areas of the aircraft based upon the absolute pressure and the oxygen percentage; and

reporting the partial pressure of oxygen to a central control system; and

dispensing oxygen from the high-concentration oxygen supply under a control of the central control system into the occupant cabin based, at least in part, on the partial pressure of oxygen.

5. (Currently Amended)

A method for controlling a degree of oxygen/nitrogen shift of incoming air in response to a partial pressure of oxygen in areas of an aircraft, said method comprising:

dispensing an oxygen flow from a high-concentration oxygen supply to an occupant cabin of the aircraft to increase the level of oxygen concentration within the cabin;

dispensing a nitrogen flow from a high-concentration nitrogen supply to a fire-susceptible, internal non-habitable region ~~outside a fuel tank~~ of the aircraft to decrease the capability for the atmosphere therein to support combustion;

varying the oxygen flow and the nitrogen flow into the occupant cabin based in part on a detected condition in the aircraft.

6. (Currently Amended)

A method for controlling an atmosphere in occupied and unoccupied areas of an aircraft, said method comprising:

establishing a supply of nitrogen rich air by separating nitrogen from ~~ambient~~ air onboard the aircraft;

storing the supply of nitrogen rich air in an unoccupied area; and

introducing the nitrogen rich air stored in the unoccupied area into ~~an occupied a~~ habitable area.

7. (Currently Amended)

A method for lowering a partial pressure of oxygen below a natural, at altitude level in response to fire in a habitable area of an aircraft, said method comprising:

establishing a supply of nitrogen rich air by separating nitrogen from ambient air onboard the aircraft;

establishing a supply of oxygen rich air by separating oxygen from ambient air onboard the aircraft; and

introducing the nitrogen rich air stored in the non-habitable area of the aircraft into the habitable area, in conjunction with directing the oxygen rich air overboard, if a fire is detected onboard the aircraft.

8. (Currently Amended)

~~The method of claim 10, A method for adjusting nitrogen and oxygen concentrations within regions of an aircraft, said method further comprising [[:]]~~

~~separating nitrogen from ambient air onboard the aircraft thereby establishing a high-concentration nitrogen supply in a first location; and~~

~~storing the dispensing high-concentration nitrogen supply in a from the first location prior to dispensing the high-concentration nitrogen from the high-concentration nitrogen supply. to a fire-susceptible, non-habitable internal region separate from a fuel tank, thereby decreasing a capability for an atmosphere of the fire-susceptible, non-habitable internal region to support combustion by reducing a partial pressure of oxygen within the atmosphere.~~

9. (Currently Amended)

~~The A method for adjusting an oxygen concentration within a region of an aircraft, of claim 8, further comprising:~~

~~separating oxygen from ambient air onboard the aircraft thereby establishing to establish~~
a high-concentration oxygen supply; and

~~dispensing high-concentration oxygen from the high-concentration oxygen supply to an occupant cabin of the aircraft thereby increasing to increase~~ a level of oxygen concentration within the occupant cabin to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure.

10. (Currently Amended)

The method of claim 9, further comprising:

separating nitrogen from ambient air to establish a high-concentration nitrogen supply;
and

~~determining that reduced oxygen concentration is required-desired~~ in the occupant cabin; and ~~responsively-initiating a mixing of dispensing the reserved-high-concentration nitrogen from the high-concentration nitrogen supply to, thereby diluting dilute~~ the oxygen concentration in the occupant cabin.

11. (Currently Amended)

The method of claim 3, ~~where~~ wherein the fire-susceptible, internal non-habitable region ~~outside the fuel tank~~ comprises at least one of: a cabling duct, a baggage compartment, a radio rack compartment, and an electrical wiring compartment.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is a cabling duct.

18. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is a baggage compartment.

19. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is a radio rack compartment.

20. (Currently Amended)

The method of claim 30, [[8,]] wherein the fire-susceptible, non-habitable ~~internal~~ region ~~outside the fuel tank~~ is an electrical wiring compartment.

21. (Previously Presented)

The method of claim 5, wherein the detected condition is at least one of a partial pressure of oxygen values, flight parameters, aircraft configuration, and smoke/fire warning status.

22. (Currently Amended)

The method of claim 6, wherein the ~~occupied~~ habitable area comprises at least one of: a passenger cabin, a cockpit, a lavatory, a galley, and a vestibule.

23. (Previously Presented)

The method of claim 6, wherein the unoccupied area comprises at least one of: a cabling duct, a baggage compartment, a radio rack compartment, and an electrical wiring compartment.

24. (Currently Amended)

A system for adjusting a nitrogen concentration and an oxygen concentration within regions of an aircraft, the system comprising:

a gas separation unit to separate ambient air ~~from a habitable area~~ into a nitrogen rich flow and an oxygen rich flow;

a plurality of sensors monitoring at least one condition within at least one region of an aircraft; and

a central control unit controlling a dispensation of the nitrogen rich flow and the oxygen rich flow based in part on an output of the plurality of sensors to increase a level of oxygen concentration within a habitable area of the aircraft to a level greater than a naturally occurring partial pressure of oxygen at an experienced internal cabin pressure.

25. (Currently Amended)

The system of claim 24, wherein the central control unit causes the dispensation of the nitrogen rich flow into the habitable area if a reduced oxygen concentration in the habitable area is ~~required~~ desired.

26. (Currently Amended)

The system of claim 24, wherein the central control unit causes the dispensation of the oxygen rich flow into the habitable area if a higher oxygen concentration in the habitable area is ~~required~~ desired.

27. (Currently Amended)

The system of claim 24, wherein the central control unit causes the dispensation of a portion of the oxygen rich flow overboard if a reduced oxygen concentration in the habitable area is ~~required~~desired.

28. (Previously Presented)

The system of claim 24, wherein the habitable area comprises at least one of a passenger cabin, a cockpit, a lavatory, a galley, and a vestibule.

29. (New)

The method of claim 8, wherein the first location is a reservoir.

30. (New)

The method of claim 8, wherein the first location is a fire-susceptible, non-habitable region of the aircraft.